

## CLAIMS:

1. A data processing device for receiving an input stream of first data samples at a first rate and for generating an output stream of second data samples at a higher second rate by inserting additional data samples generated from said first data samples, said device (1) comprising:

5 a) memory means (10) for storing a predetermined one of said first data samples; and

b) time adjusting means (7, 11, 12) for adjusting the timing of said output stream, said time adjusting means comprising:

b1) skipping means (7) for skipping first predetermined ones of said second

10 data samples derived from said stored predetermined one of said first data samples; and

b2) replacing means (11, 12) for replacing second predetermined ones of said second data samples following said skipped first predetermined ones of said second data samples by new second data samples derived from said stored predetermined one of said first data samples.

15

2. A device according to claim 1, wherein said data processing device is an interpolation filter (1) in which said second data samples are obtained by successively multiplying each of said first data samples by a set of filter coefficients, and by adding an obtained result of multiplication at a predetermined filter stage to a delayed result of the preceding filter stage, wherein said delayed result has been delayed by a delay time corresponding to a time period of said first rate.

20

25

3. A device according to claim 2, wherein said skipped first predetermined ones of said second data samples are skipped at each filter stage and are derived from a result of multiplication of said stored predetermined one of said first data samples with respective starting ones of said set of filter coefficients, said replaced second predetermined ones of said second data samples are replaced at a predetermined filter stage and are derived from a result of multiplication of a predetermined number of first data samples following said stored predetermined one of said first data samples with the respective starting one of said set of

filter coefficients, and said new second data samples are derived from a result of multiplication of said stored predetermined one of said first data samples with the respective starting ones of said set of filter coefficients of other filter stages different from said predetermined filter stage.

5

4. A device according to claims 3, further comprising first switching means (11) for supplying said stored predetermined one of said first data samples to a multiplying means (4) of said predetermined filter stage.

10

5. A device according to claim 4, further comprising second switching means (12) for intermittently supplying said respective starting ones of said set of filter coefficients of said other filter stages and said set of filter coefficients of said predetermined stage to said multiplying means (4) of said predetermined stage.

15

6. A device according to any one of claim 2 to 5, further comprising third switching means (7) for successively supplying said set of filter coefficients to multiplying means (4) of said other filter stages.

20

7. A device according to any one of the preceding claims, further comprising fourth switching means (9) for connecting an input terminal of said data processing device to a zero data value so as to introduce a predetermined delay to said second data samples.

25

8. A method of adjusting the timing of a higher-rate stream of second data samples derived from a lower-rate stream of first data samples, said method comprising the steps of:

30

- a) storing a predetermined one of said first data samples;
- b) skipping first predetermined ones of said second data samples derived from said stored predetermined one of said first data samples; and
- c) replacing second predetermined ones of said second data samples following said skipped first predetermined ones of said second data samples by new second data samples derived from said stored predetermined one of said first data samples.